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It is difficult to forget the charming politeness of the people of Japan as well as their attention to beauty as manifest in the careful manicuring of their pine trees and in the presentation of their meals.

This was the setting of the 44th IMO. With 82 countries and 457 students, the IMO continues as a solid international event. Two new countries, Mozambique and Saudi Arabia, sent observers to this year's IMO. They intend to send teams in 2004.

Each invited country is permitted to send a team of up to six young amateur mathematicians. (I.e., must be under 20 years of age and not enrolled in tertiary education.) The team is accompanied by a Leader and a Deputy Leader. The Leader is involved in setting the paper, the Deputy in caring for the students up to the competition. Afterwards the Leader and Deputy combine to mark their students' papers and agree on scores in conjunction with local mathematicians.

The Team Leaders arrived a few days before the students and Deputies so as to put together a competition paper that would be both challenging and appealing. The Problem Selection Committee had already worked hard to reduce approximately one hundred proposed problems from all around the world to a short list of twenty-seven. In a way the Team Leaders could get into the same spirit as the students at the IMO at this point, because they were given the short listed problems for about one and a half days to work on without solutions. Even easy problems can seem difficult when one is working under these conditions. Eventually solutions to all the problems were released to

the Team Leaders. After this the Jury (all the Team Leaders as a committee) gradually selected the problems that would be on the paper. They were certainly mixed in subject and in difficulty. There being two each from geometry and number theory, and one each from algebra and combinatorics. Their origins were from Ireland, Brazil, Finland, Poland, Bulgaria, and France. Following this translations were made into all the languages required by the students.

It is essential that confidentiality is maintained as regards the paper. Hence as an incentive Leaders are kept separated from the rest of their teams until after the students have sat the competition. The main venue for the IMO was the National Olympics Memorial Youth Centre, Shinjuku, Tokyo. Once the students arrived there, the Leaders were moved to another location in Makuhari some two hours away to complete their deliberations.

There is however one occasion where Teams get to see their Leaders prior to the exams, and that is during the opening ceremony. But "see" is all they get to do. The Leaders were paraded on stage, then there were speeches by those who had worked hard to make the 44th IMO happen. Finally the teams were all paraded on stage. It was very nice to see the teams from Cuba and Paraguay particularly applauded since they each only sent a single contestant.

The next two days were exam days. Students are allowed to ask questions in written form during the first half hour of the exam. Most have to do with notation and definitions, or even the student

wanting to be extra careful that he has correctly understood the problem. One student, perhaps looking for some controversy asked “Can I use the axiom of choice” to which the response was “Yes.” Perhaps he had been waiting years to ask this question at the IMO. I hope it helped him solve the problem!

The exam turned out to be rather difficult this year. I am pleased to say that the coordination was very robust and did not soften to try and compensate for the difficulty of the exam. Actually this year the Leaders had the luxury of about a day

to debate and provide input on the marking schemes from the Problem Selection Committee.

In the final analysis 210 students (46%) were awarded at least a bronze, 106 students (23.2%) were awarded at least a silver and 37 students (8.1%) were awarded a gold. A further 116 students received an honourable mention for gaining full marks on at least one question. Three students, namely one from China and two from Vietnam, achieved the outstanding result of gaining a perfect score.



The team after closing ceremony, back row Angelo Di Pasquale (Team Leader), Zhihong Chen, Marshall Ma, Daniel Mathews (Deputy Leader). Front Row Ross Atkins, Daniel Nadasi, Laurence Field, Ivan Guo.

It was a privilege to have Shinno Naruhito, His Imperial Highness the Crown Prince of Japan present at the closing ceremony and who spoke to the audience along with Government Ministers during the prize giving ceremony. Also memorable was the final perhaps unscripted act of inviting all the guides on stage and applauding them for looking after their teams so well. This finally seemed to turn more into a game show

as a camera man and reporter started going around interviewing guides and contestants at random. There was one more award made at the banquet after the closing ceremony - that of the “Golden Microphone” awarded to the Team Leader who spoke the most during the Jury Meetings. This provides incentive for Leaders to speak less so and more concisely at Jury meetings and thus avoid this prize!

The Australian Team was completely new this year. They came equal 26th with Brazil in the unofficial rankings. Congratulations to all the team for this effort. Laurence Field, year 11, Sydney Grammar School, NSW and Daniel Nadasi, year 11, Cranbrook School, NSW both gaining Silver medals, Ross Atkins, year 12, Pembroke Senior High School, SA and Ivan Guo, year 11, Sydney Boys' High School, NSW both gaining Bronze medals and Zhihong Chen, year 12, Melbourne High School, VIC and Marshall Ma, year 12, James Ruse Agricultural High School

NSW both gaining Honourable Mentions for solving one problem perfectly.

It is pleasing to see that Laurence, Daniel and Ivan are all in year 11 and thus eligible for next year's team.

There were two sessions of 4 hours and 30 minutes, held on consecutive days. Each session consisted of 3 questions with a maximum score of 7 points per question. Solutions to the questions (see Aust. Math. Soc. Gazette **30** (2003), 234) may be found at <http://www.imo2003.com>. The individual results of the Australian team and some unofficial country rankings are shown below.

Team Scores for the 2003 Australian IMO Team

	Q1	Q2	Q3	Q4	Q5	Q6	Total	Award
Ross Atkins	2	3	0	7	1	1	14	Bronze
Zhihong Chen	2	2	0	7	1	0	12	Honourable Mention
Laurence Field	7	7	0	7	1	0	22	Silver
Ivan Guo	5	1	0	7	1	0	14	Bronze
Marshall Ma	2	1	0	7	1	0	11	Honourable Mention
Daniel Nadasi	7	3	0	7	1	1	19	Silver
Aust. Team Tot.	25	17	0	42	6	2	92	
Aust. Team Av.	4.3	2.7	0.0	7.0	1.0	0.3	15.3	
Overall IMO Av.	3.6	2.3	0.4	4.6	1.6	0.6	13.1	

The medal cutoffs were 29, 19 and 13 points for Gold, Silver and Bronze respectively. There were a further 66 honourable mentions for those who solved one question perfectly but who did not receive a medal.

Some unofficial country rankings

Ranking	Score	Country
1.	227	Bulgaria
2.	211	China
3.	188	United States of America
4.	172	Vietnam
5.	167	Russia
6.	157	Korea
7.	143	Romania
8.	133	Turkey
9.	131	Japan
10.	128	United Kingdom, Hungary
26.	92	Australia